Controller Selectable Hyperlinks

This invention relates to network systems, and more particularly, to the utilization of a manual controller for selection of hyperlinks displayed on a monitor connected as part of a network system.

BACKGROUND OF THE INVENTION

In network systems, such as the Internet, and the like, individual users are connected through network servers to download web sites associated with a particular URL address. Typical web sites contain hyperlinks to other URL addresses. Such hyperlinks can be a specific phrase, word or symbol, which transfer the user to another element of the same document, another hypertext document, a different file or a different web site location. These hyperlinks can be in the form of individual words, advertising banners or the like.

The typical input device for selecting a particular hyperlink is the mouse. Using the mouse, a pointer movable along the screen can be directed to the particular hyperlink, and thereafter clicking a switch on the mouse at a pointer location makes the selection of that hyperlink. By selecting such hyperlink, the user can connect to another server location or website.

Where the hyperlink is, by way of example, a banner advertisement, selecting the particular banner advertisement on one web site will move the user to the web site of the advertiser of the banner. Thereafter, on the new web site location, the user may have to go through a number of steps in order to place an order, download material, or carry out some other specific instruction. Thus, it normally will take a number of clicks before a final product is ordered, document downloaded, e-mail sent, or other interactive instruction completed.

A further problem that exists with current systems is that navigation is dependent upon the use of a mouse. The mouse is an instrument that permits easy manipulation of the pointer on the screen. By rolling the mouse along the mouse pad, it is easy to position the pointer on the screen and select the particular desired hyperlink desired.

However, currently there are many types of network input devices, other than traditional desktop or laptop personal computers (PCs), that have network access capabilities. For example, hand-held personal organizers such as Palm Pilots and Handspring Visors, televisions sets, home entertainment systems and the like are all now being utilized as input devices to the Internet. Most of these devices do not utilize a mouse device. Instead of a mouse, these devices typically make use of directional buttons to position the pointer on the web pages. On-screen navigation about web pages is complicated as it is more difficult to specifically orient the pointer to the exact location desired in selecting a particular hyperlink. Thus, use of these devices to navigate a network, such as the Internet, can be quite cumbersome and can become rather time consuming.

SUMMARY OF THE INVENTION

It is accordingly, an object of the present invention to provide a network connection system utilizing an input controller with a key pad for facilitating hyperlink selection, without the need for utilizing a mouse and rolling the mouse along the mouse pad.

A further object of the present invention is to provide a network connection system having hyperlinks wherein guidance diagrams are displayed directly overlying the screen images when a pointer passes over a hyperlink.

Yet a further object of the present invention is to provide a guidance diagram as an overlay associated with a hyperlink for providing a plurality of selectable options, each option having an icon associated with it, with the icon corresponding to a key pad of a controller input unit.

In accordance with the present invention, there is provided a data processing system capable of connection to a network wherein a guidance picture with selectable options associated with specified entry keys is generated when a pointer is passed over a hyperlink on the network page.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings;

Fig. 1 shows AAA Company's web site with a banner advertisement of BBB Company.

Fig. 2 shows AAA Company's web site with pointer oriented over banner advertisement;

Fig. 3 shows the guidance diagrams overlaid on the AAA Company's web site with the options displayed beneath each corresponding guidance diagram;

Fig. 3A shows an example of possible standardized menu options for the corresponding buttons on the controller;

Fig. 4 is the web site of the advertiser BBB Company with hyperlinks;

Fig. 5 is a schematic diagram showing the connection of servers, such as AAA Company's server and BBB Company's server to a network to which a home entertainment apparatus is connected;

Fig. 6 is a schematic diagram of a position table, for a particular web site, and

Fig. 7 is a flow chart illustrating the operations performed by a home entertainment apparatus in the current invention.

DESCRIPTION OF PREFERRED EMBODIMENT

Web pages on a network, such as the Internet, typically have hyperlinks embedded in them. These hyperlinks are used to connect or "link" the user to other web

pages on the network, which may be from the same source as the initial web page, for example to provide additional information on a particular subject, or which may be for an unrelated second source, for example to connect to the web site of an advertiser.

The present invention makes use of an input device, such as a game controller. With such devices, it is possible to control a pointer moving across a screen by using the up-down-left and right keys on the controller. However, it is not that easy to manipulate the pointer across the screen using those keys. In addition to the directional keys, the controller also includes various other control buttons and keys which are typically utilized in controlling a game. The present invention makes use of those individual game control buttons to make selections associated with a particular hyperlink.

In accordance with the present invention, as the pointer floats across the screen, each time it passes over a particular identified hyperlink, a guidance picture will immediately appear on the screen overlaid on the existing web site image. So long as the pointer remains associated with that hyperlink, the overlaid guidance diagrams will be presented. The guidance diagram does not obstruct the normal operation of the web site – the web site continues its normal operation behind the navigational guidance diagram. As the pointer moves away from the hyperlink, the guidance diagram will disappear from the screen. When the pointer moves to another identified hyperlink, a new guidance diagram associated with that new hyperlink appears as a new overlay on the screen.

Each of these guidance diagrams typically provides a selection of options associated with the particular hyperlink on which the pointer is directed. Each option is identified with an icon as well as the textual description of the option. The icons that are used to identify these options correspond to particular control buttons on the controller.

Accordingly, while the pointer is still addressing that particular hyperlink, by depressing the particular button on the controller represented by an icon on the guidance diagram, the option associated with the particular button is selected.

By providing the guidance diagram with a number of options directly overlaid on the screen and associated with the particular hyperlink, the user can save a number of steps that he would normally have to undergo to navigate web sites and networks using existing techniques. At present, in selecting a particular hyperlink, the user would automatically be directed to another URL location. At the second URL location it would be necessary for him to make the particular selection of options that he desires. However, by providing the options as an overlay directly on the initial web site location of the hyperlink of interest, the user can automatically select the particular option without having to first transfer to a second hyperlink location to perform a desired action related to the hyperlink.

For example, if the hyperlink at the first location corresponds to a banner advertisement, typically using a mouse, a user clicks on the banner advertisement and is sent to a different URL location associated with the advertiser of the banner. At the second location, the user must then select whether to download information, send e-mail, or other further selections. Using the guidance diagrams, however, a plurality of options are displayed as an overlay directly on the initial web site location associated with the banner. For example, these can be four icons positioned quadralaterally about the banner hyperlink - each icon associated with a particular option. Thus, on the same web site as the hyperlink itself, a series of options are provided directly to the user as part of the

guidance diagram without the need to first transfer to the new URL location to select an option.

In addition, the user need not move the pointer to make a selection of any of these options. While simply keeping the pointer directed on the particular banner advertisement, the user can depress the particular key associated with one of the icons/options in the guidance diagram and thereby make the selection of that particular option directly on the original web site location.

The particular guidance diagram associated with a specific banner or other hyperlink is downloaded from the host server of the web site accessed by a user. Typically, when a web site is accessed, data for the formation of the web page, including information pertaining to hyperlinks embedded in the web page, are communicated to the user's location. The information for a particular guidance diagram associated with each of the identified hyperlinks on a web page can be downloaded to a user's location to be stored in a data file.

The download of information from the server can take place either in one download or in multiple downloads. For example, where banners are refreshed at regular intervals at a web site, each time the banner information for the refreshing of a web page is downloaded from the server, the associated guidance diagram is also downloaded from the host server. Alternatively, as discussed above, all the information for all the hyperlinks including information for the associated guidance diagrams can be downloaded initially from the host server at the time information is downloaded for the formation of the web page.

The particular association between a hyperlink and a guidance diagram can be stored at a data file associated with the user and his input controller. These can be identified by any means of identifying the particular banner. By way of example, it can be identified by the particular identification of the location coordinates on the screen so that when the pointer points to those particular location coordinates, the data file is interrogated and the particular guidance picture, including the icons, the particular selection of options and their location around the hyperlink, are all derived from the data file and then displayed as an overlay on the screen.

Other means for identifying the particular banner can be used; such as a corresponding name of the banner, a pre-identified location of the banner or other means of entry into the data filed can be used to identify the guidance picture associated with that particular hyperlink.

More particularly, with reference to Fig. 1, there is shown at **1** a web page. That web page is identified to a first company listed as AAA Company. The web page contains specific information associated with the web site and also includes a particular banner advertising area **2**. The particular banner advertisement relates to the purchase of a product at a second web site having a different URL location and associated with a separate company identified herein as BBB Company.

The typical method of selecting the hyperlink identified by banner **2** is the use a pointer **3**, as shown in Figure 2. Using the existing technology, the pointer is positioned over the banner and hyperlink using a mouse and the left button on the mouse is then clicked thereby selecting the link. When the link is selected, the user is then connected to the second web site, BBB Company's web site. From BBB Company's web page shown

in Figure 4, if the user wants to buy BBB Company's product, WWW soft, the user must then position the pointer over the link **6** and once again select to connect to the linked page. Similarly, if the user wanted to connect to obtain additional information on BBB Company's product WWW soft, then the user would have to position the pointer over the link **7** and use the mouse to select the link to connect to the next page.

However, under the present invention, as shown in Fig. 3, a user on the AAA Company web site positions the pointer over the banner. The guidance diagrams **4a-4d** then appears overlaid on the web site. The user then need only depress the appropriate button on an input controller **30**, as shown in Fig. 5, corresponding to the user's desired action. For example, to download or purchase BBB Company's WWW soft product, the user would depress the button **34** on the controller **30** illustrated in Fig. 5 which corresponds to the icon **4b** of the guidance diagram. Under the current invention the user is linked to the appropriate page of BBB Company's web page without first having to access BBB Company's home page and then from there selecting a link to connect to the appropriate web page corresponding to the user's desired action, for example to purchase the WWW soft product or to access additional information regarding WWW soft.

The guidance diagram options may be associated with standard commands. As shown in Fig. 3A, the input controller buttons depicted in the left column of Fig. 3A can be set to correspond to particular standard commands, as shown in the right column of Fig. 3A. The standard commands can be the commands associated with the particular control buttons during normal use of the input controller. Using standardized commands further facilitates network navigation as the user may already be familiar with the standard commands for the input controller buttons.

If there are more commands associated with a particular hyperlink than would be feasible to display in a single guidance diagram, then one of the selectable options from the initial guidance diagram may be to view further selectable options. The further options may be different commands for the input controller buttons or commands not previously displayed for other input controller buttons.

Another feature that may be implemented in the current invention is to allow the user to set preferred controller buttons on the input controller for use in the practice of the current invention. For example where the input controller is a numeric keypad, the user may set the number 2, 4, 8, and 6 keys as his preferred controller buttons for selection of options in the guidance diagrams.

As shown in Fig. 5, the current invention is accomplished incorporating at least six functions, namely a File Access Function **22**, a Rendering Function **23**, a Position Detecting Function **24**, a Judging Function **25**, a Setting Function **26**, and a Button Detecting Function **27**.

As in typical network use, a web site is rendered based on the file received from a host server of a web site requested by a user. For web sites using the current invention, a web page (web site picture) is rendered based on the file received from the web site's host server and a table **18**, as shown in Figure 6, is generated in the RAM **17** of the home entertainment apparatus **28**.

Initially, the File Access Function **22** accesses a desired file on the host server that includes data for rendering a web page together with the associated table **18** as illustrated in Fig. 6 The Rendering Function **23** then renders a web page **1** , as illustrated in Fig. 1.

During operation, the Position Detecting Function **24** detects the position of the pointer **3** on the web page **1**, as shown in Figure 3. If there is an address associated with the position of the pointer, then the Judging Function **25** determines which banner in a page the pointer **3** is oriented to. The Rendering Function **23** receives the information from the Judging Function **25** and then renders the guidance diagram **4a-4d** and **5a-5d** and imposes it on the web page **1**, as shown in Fig. 3.

The Button Detecting Function **27** detects which button of the controller **30** is depressed by the user and sends the result to the Setting Function **26**. Utilizing a table **18** as illustrated in Fig. 6, the Setting Function **26** takes the results from the Button Detecting Function **27** and Position Detecting Function **24** to determine what network address is associated with the depressed button. The Setting Function **26** then sets the address sending it to the File Access Function **22.**

The File Access Function **22** then receives the network address set by the Setting Function **26** and then accesses the target file at the set address. The Setting Function **26** downloads the information for the target file, including the data for performing the desired action for example, rendering a target BBB Company's web page after the "Go to BBB Company site" button was depressed by the user, or connecting to another web page and executing a function such as "Get some more information about WWW soft," or "Download" as selected by the user, or launching a local application as selected by the user, for example after the user depresses the button for "Send a Message."

As shown in Fig. 7, the general operation of the current invention for a user accessing a network location is as follows. The user's input device (such as an entertainment unit) reads a file from a host server requested by the user (**S1**). The user's

input device then renders a web site based on the file received from the host server (**S2**). A table of the positions, addresses, functions, and input controller buttons for the web site is then generated in the RAM of the user's input device (**S3**).

The position of the pointer is detected by the input device (**S1**) and a determination is made as to whether there are any addresses or links associated with the position of the pointer (**S5**). If there is such an address associated with the position, then the addresses are then set for that position (**S6**) and a guidance diagram is rendered and imposed on the web site (**S7**).

After the rendering of the guidance diagram, or after the determination of whether that there are no addresses associated with the pointer position, then a determination is made as to whether any keys (either directional keys or controller buttons) on the input controller buttons are being manipulated (**S8**). The detection of any manipulated keys continues until there a key is manipulated (**S9**). If a directional key is manipulated, then the input device again detects the new position of the pointer and continues with the functions as described thus far.

If a directional key is not being manipulated, a determination is made as to whether a controller button for which commands have been assigned is being manipulated (**S10**). If such a button is being manipulated then the address corresponding to the manipulated button is accessed (**S11**).

The host server may have the capability to create and store the table of the positions, addresses, functions, and input controller buttons for the web site that is then generated in the RAM of the user's input device. However, as shown in Fig. 8, this